



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/057,647	01/25/2002	Robert Edward Galbraith	ROC920010150US1	3478

7590 04/22/2004

Brian M. Dugan
Dugan & Dugan, LLP
18 John Street
Tarrytown, NY 10591

EXAMINER

DINH, NGOC V

ART UNIT	PAPER NUMBER
----------	--------------

2187

3

DATE MAILED: 04/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

P22

Office Action Summary

Application No.

10/057,647

Applicant(s)

GALBRAITH ET AL.

Examiner

NGOC V DINH

Art Unit

2187

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 January 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6,8,11-15,17,20,24,26,29 and 33 is/are rejected.
- 7) ☒ Claim(s) 7,9,10,16,18,19,25 and 28 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2. 6) ☐ Other: _____

DETAILED ACTION

INFORMATION DISCLOSURE STATEMENT

1. The Applicant's submission of the IDS filed 01/25/2002 have been considered. As required by M.P.E.P. 609 C(2), a copy of the PTOL-1449 is attached to the instant office action.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-6, 8, 11-15, 17, 20-24, 26, 29-34 are rejected under 35 U.S.C 103(a) as being unpatentable over Dye et al PN 6,523,102, in view of Chambers, IV PN 5,481,701.

3. As per claims 1, 14:

With respect to claims 1 and 14, Dye teaches a method of updating a compressed cache [240, fig. 2] comprising the steps of:

initiating an update routine for replacing first data stored within the cache with second data, wherein a first section of a compressed data band stored in the cache includes the first data and a second section of the compressed data band includes third data [col. 3, lines 1-10; col. 14, lines 37-60; col. 35, lines 21-35], and in response to initiating the update routine [e.g., updating cache entries, col. 35, lines 21-25], supplementing one or more resources [cache block pointers (810), fig. 17, col. 31, lines 37-60] utilized by the first data with a number of additional resources [e.g., additional linked-list pointers, col. 32, lines 33-38] so as to accommodate the second data [e.g., dynamically adjusting/allocating size of compressed cache, col. 19, lines 50-60; col. 29, lines 5-65] if the one or more resources utilized by the first data are insufficient to accommodate the second data [col. 34, line 51 to col. 35, line 40].

Dye does not teach replacing the first data within the compressed data band with the second data without decompressing the third data.

Chamber teaches decompressing a portion of compressed data file [identified blocks, “decompressing one or first blocks while avoiding the step of decompressing the one or more second block; col. 44, lines 20-35] instead of the entire compressed data file when access request is issued to a compressed file [col. 1, lines 40-60; col. 2, lines 10-15; col. 10, lines 40-45].

It would have been obvious to one having ordinary skill in the art at the time the invention was made to further include Chamber ‘s teaching as mentioned above into Dye system. Doing so would first reduce the wasteful of computational resources to decompress the entire file, and secondly the unknown errors during the lengthy decompressing the entire data file [Chambers, col. 1, lines 43-60; col. 2, lines 10-20].

4. As per claims 2-6, 11, 15:

Dye further teaches: Per claim 2, the update routine includes one of a destage operation and a write operation [col. 35, lines 22-50]; Per claim 3, replacing comprises: determining whether the second data is compressed; and compressing the second data if the second data is uncompressed [fig. 13, steps 704, 706]; Per claim 4, comparing a first compression factor of the first data with a second compression factor of the second data if the second data is compressed; and determining, based on the comparison step, whether one or more resources in the compressed cache utilized by the first data are sufficient to accommodate the second data in order to replace the first data in the compressed cache with the second data [col. 24, lines 15-25; col. 33, lines 36-55; col. 34, lines 57-65]; Per claim 5, supplementing the one or more resources utilized by the first data with a number of additional resources so as to accommodate the second data if the one or more resources utilized by the first data are insufficient to accommodate the second data [col. 35, lines 60-65]; Per claim 6 and 15, receiving a request for a number of additional resources sufficient to accommodate the second data when combined with the one or more resources utilized by the first data; determining whether a reserve of available resources [cache block free list, linked-list pointers] has the number of additional resources; and allocating the number of additional resources from the reserve of available resources if the reserve of available resources has the number of additional resources [col. 31, lines

Art Unit: 2187

35-65; col. 32, lines 33-60; col. 33, lines 15-50; col. 34, lines 51-65; col. 35, lines 20-65; col. Col. 64, lines 50-60];

Dye further teaches: Per claim 11, replacing the first data in the compressed cache with the second data if the one or more resources are sufficient to accommodate the second data [col. 36, lines 1-15].

5. As per claims 8, 17:

Per claims 8 and 17, Dye implicitly teaches performing a pillage process [e.g., deallocating unused compressed cache space, col. 36, lines 5-6; freeing underutilized cache space, col. 6, lines 21-30] if the reserve of available resources [cache block pointers (810), fig. 17, col. 31, lines 37-60] has an insufficient number of additional resources [e.g., additional linked-list pointers, col. 32, lines 33-38] to accommodate the second data when combined with the one or more resources utilized by the first data. This is because when the compressed cache needs more space to accommodate future stored data, the compressed cache manager will remove the pointers associated with deallocated cache entries and return the pointer to linked list. The pointers later will be regenerated and attached to cache entry header to accommodate future stored data.

6. As per claims 12-13:

Dye further teaches: Per claim 12, determining, after the replacing step, whether at least one of the one or more resources utilized by the first data has become available; and allocating the at least one of the one or more resources into a reserve of available resources if the at least one of the one or more resources has become available [col. 35, line 60 to col. 36, line 10]; Per claim 13, Dye further teaches each of the one or more resources utilized by the first data is individually addressable by a corresponding page table entry [col. 6, lines 33-40; col. 57, line 64 to col. 58, line 7; col. 6, lines 33-65].

7. As per claims 20-24, 26, 29-34:

Claims 20-24, 26, 29-43 basically are the necessary elements that carry out the operating steps in claims 1-6, 8, 11-14. Accordingly, claims 20-24, 26, 29-33 are rejected for the same reason as set forth in claims 1-6, 8, 11-14.

Allowable Subject Matter

8. As per Claims 7, 9-10, 16, 18-19, 25, 27-28:

Claims 7, 16, 25, 9-10, 18, 27-28 are objected to as being dependent upon rejected base claims, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- a) Malik PN 6438556 discloses decompressing portion of data file.
- b) Franasek PN 6,240,419 PN discloses compression store addressing.
- c) Miller PN 6119120 discloses decompressing block-by-block for efficient search time.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ngoc Dinh whose telephone number is (703) 305-3023. The examiner can normally be reached on Monday-Friday 8:30 AM-5:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Donald A. Sparks, can be reached on (703) 308-1756. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 746-7239 for regular communications and (703) 746-7238 for After Final communications.

Art Unit: 2187

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

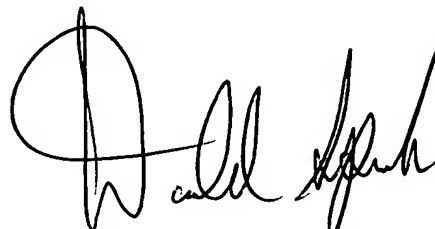


NGOC DINH

Patent Examiner

ART UNIT 2187

April 16, 2004



DONALD SPARKS

Supervisory Patent Examiner

Technology Center 2100